

## **AMENDMENTS TO THE CLAIMS**

This listing of the claims replaces all prior versions thereof:

1. (Currently Amended) A method in a data processing system for optimizing a program, the method comprising the steps of:

automatically analyzing a statistical profile of a program execution; and

automatically optimizing object code of the program based on at least one of the analysis, information about at least one prior compilation of the program, and information about at least one prior optimization of the program,

wherein, the automatic optimizing includes determining that additional information is required to optimize the object code of the program, performing a first compiling of a portion of the program, executing the first compiled portion of the program, gathering the additional information, and performing a second compiling of the portion of the program using the gathered additional information, and the automatic optimizing includes ~~identifying logical relations between a plurality of predetermined optimization techniques and selecting one of the~~ from among a plurality of optimization techniques and based on the logical relations between said optimization techniques, a not previously tried one of the plurality of optimization techniques if a previously tried optimization technique was unsuccessful.

2. (Original) The method of claim 1, wherein the program is automatically optimized during a compilation.

3. (Original) The method of claim 2, wherein the program is automatically optimized during a run-time compilation.

4. (Original) The method of claim 1, further comprising the steps of:

interrupting the program;

recording an execution state of the program; and

storing the recorded execution state to create the statistical profile.

5. (Original) The method of claim 1, wherein the information about at least one prior compilation of the program includes a profile of the program implemented during the at least

one prior compilation.

6. (Original) The method of claim 1, wherein the information about at least one prior optimization of the program includes a profile of at least one change made to the program during the at least one prior compilation.

7. (Currently Amended) A computer-readable storage medium containing instructions that cause a data processing system to perform a method for optimizing a program, the method comprising the steps of:

automatically analyzing a statistical profile of a program execution; and

automatically optimizing object code of the program based on at least one of the analysis, information about at least one prior compilation of the program, and information about at least one prior optimization of the program,

wherein, the automatic optimizing includes determining that additional information is required to optimize the object code of the program, performing a first compiling of a portion of the program, executing the first compiled portion of the program, gathering the additional information, and performing a second compiling of the portion of the program using the gathered additional information, and the automatic optimizing includes ~~identifying logical relations between a plurality of predetermined optimization techniques and selecting, one of the~~ from among a plurality of optimization techniques and based on the logical relations between said optimization techniques, a not previously tried one of the plurality of optimization techniques if a previously tried optimization technique was unsuccessful.

8. (Previously Presented) The computer-readable storage medium of claim 7, wherein the program is automatically optimized during a compilation.

9. (Previously Presented) The computer-readable storage medium of claim 8, wherein the program is automatically optimized during a run-time compilation.

10. (Previously Presented) The computer-readable storage medium of claim 7, further comprising the steps of:

interrupting the program;

recording an execution state of the program; and

storing the recorded execution state to create the statistical profile.

11. (Previously Presented) The computer-readable storage medium of claim 7, wherein the information about at least one prior compilation of the program includes a profile of the program implemented during the at least one prior compilation.

12. (Previously Presented) The computer-readable storage medium of claim 7, wherein the information about at least one prior optimization of the program includes a profile of at least one change made to the program during the at least one prior compilation.

13. (Currently Amended) A data processing system for optimizing a program, the data processing system comprising:

a memory having an optimization program that automatically analyzes a statistical profile of a program execution, and automatically optimizes object code of the program based on at least one of the analysis, information about at least one prior compilation of the program, and information about at least one prior optimization of the program, wherein the automatic optimizing includes determining that additional information is required to optimize the object code of the program, performing a first compiling of a portion of the program, executing the first compiled portion of the program, gathering the additional information, and performing a second compiling of the portion of the program using the gathered additional information, and the automatic optimizing includes ~~identifying logical relations between a plurality of predetermined optimization techniques and selecting one of the from among a plurality of optimization techniques~~ and based on the logical relations between said optimization techniques, a not previously tried one of optimization techniques if a previously tried optimization technique was unsuccessful; and

a processing unit that runs the program.

14. (Original) The data processing system according to claim 13, wherein the program is automatically optimized during a compilation.

15. (Original) The data processing system according to claim 14, wherein the program is automatically optimized during run-time compilation.

16. (Currently Amended) A data processing system having a processing unit and a memory for optimizing a program, the data processing system comprising:

an analysis unit for automatically analyzing a statistical profile of a program execution; and

an optimizing unit for automatically optimizing object code of the program based on at least one of the analysis, information about at least one prior compilation of the program, and information about at least one prior optimization of the program, wherein the automatic optimizing includes determining that additional information is required to optimize the object code of the program, performing a first compiling of a portion of the program, executing the first compiled portion of the program, gathering the additional information, and performing a second compiling of the portion of the program using the gathered additional information, and the automatic optimizing includes ~~identifying logical relations between a plurality of predetermined optimization techniques and selecting, one of the~~ from among a plurality of optimization techniques and based on the logical relations between said optimization techniques, a not previously tried one of optimization techniques if a previously tried optimization technique was unsuccessful.